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10/017,926	10/29/2001	Hiroshi Maruyama	JP920000300US1	1476

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IBM CORPORATION  
INTELLECTUAL PROPERTY LAW DEPT.  
P.O. BOX 218  
YORKTOWN HEIGHTS, NY 10598

EXAMINER

SHIFERAW, ELENI A

ART UNIT

PAPER NUMBER

2136

DATE MAILED: 02/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/017,926	<b>Applicant(s)</b> MARUYAMA ET AL.	
	<b>Examiner</b> Eleni A Shiferaw	<b>Art Unit</b> 2136	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 January 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. Claims 1-28 are presented for examination.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 7, 10-11 and 22-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Godfrey et al. (Godfrey, Patent No.: US 6,363,479 B1).

As per claim 7, Godfrey teaches a digital signature system comprising:

applications for performing data processing (Godfrey col. 5 lines 50-51); and

a proxy server connected to said applications via a network (Godfrey Fig. 1 No. 110, 108, 104, and 114),

wherein said proxy server intercepts a communication, transmitted through said network, from an application to an external destination device, provides a digital signature for a message document exchanged via said communication, and transmits said message document with said digital signature to said external destination device (Godfrey Col. 4 lines 21-47 and Fig. 1 No.

104, 106, 118 and 120).

As per claim 10, Godfrey teaches a digital signature verification system comprising:

applications for performing data processing (Godfrey col. 5 lines 50-51); and  
a proxy server connected to said applications via a network (Godfrey Fig. 1 No. 108 and 110),

wherein said proxy server intercepts a communication from an external destination device to an application transmitted through said network (Godfrey Fig. 1), verifies a digital signature provided for a message document exchanged via said communication, and transmits said message document that has been authorized (Godfrey Fig. 1 No. 118 and 126, and col. 5 lines 37-41).

As per claim 11, Godfrey teaches a network system comprising:

multiple groups connected to a wide area network (Godfrey Fig. 1), all of which have applications for performing data processing and proxy servers connected to said applications via a local area network (Godfrey Fig. 1 No. 104, 114 and 116, and 110),

wherein said proxy server intercepts a communication transmitted by an application of a local group to an application of a different group, provides a digital signature for a message document exchanged via said communication, and transmits said message document with said digital signature to said application of said different group (Godfrey Fig. 1 No. 118 and 126, and col. 5 lines 13-23), and

wherein said proxy server intercepts a communication from said application of said different group to said application of said local group (Godfrey Fig. 1), verifies a digital signature provided for a message document exchanged via said communication, and transmits said authorized message document to said application of said local group (Godfrey Col. 5 lines 37-41).

As per claim 22, Godfrey teaches a computer program product comprising a computer usable medium having computer readable program code means embodied therein for causing a digital signature system, the computer readable program code means in said computer program product comprising computer readable program code means for causing a computer to effect the functions of claim 7 (Godfrey Col. 4 lines 21-36 and col. 5 lines 50-62).

As per claim 23, Godfrey teaches a computer program product comprising a computer usable medium having computer readable program code means embodied therein for a digital signature verification system, the computer readable program code means in said computer program product comprising computer readable program code means for causing a computer to effect the functions of claim 10 (Godfrey Col. 3 lines 60-63).

As per claim 24, Godfrey teaches computer program product comprising a computer usable medium having computer readable program code means embodied therein for a network system, the computer readable program code means in said computer program product comprising computer readable program code means for causing a computer to effect the functions of claim

11 (Godfrey Fig. 1).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2, 5, 8, 17, 19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Godfrey et al. (Godfrey, Patent No.: US 6,363,479 B1) in view of Boeyen et al. (Boeyen, Patent No.: US 6,675,296 B1).

As per claim 1, 17 and 19, Godfrey teaches a proxy server/a storage medium means/a program transmission apparatus means for relaying communications between applications (Godfrey Fig. 1 No. 108 & 110) and for performing an additional process comprising:

a signature generator for providing a digital signature for said message document (Godfrey Fig. 1 No. 120 & 118), and for transmitting said message document with said digital signature to a destination application (Godfrey Fig. 1 No. 126; document is signed by proxy server and transmitted to the destination application or unit 1).

Godfrey does not explicitly teach a key manager for managing multiple keys/a key used to generate a digital signature to be provided for a message document that is exchanged between said applications; and

a signature key determiner for extracting said message document from a predetermined application, and for, based on said message document, determining a key used to provide a digital signature.

However Boeyen discloses managing a plurality of private keys to generate a digital signature to be provided for a message document (Boeyen Col. 6 lines 62-col. 7 lines 18); and

the certificate generator employs one of the plurality of the private signing keys in response to a selected signature format (signature format, from Boeyen Fig. 6 No. 212a and 212b, is selected and the certificate generator extracts the selection message document from the message and determines the appropriate key used to provide a digital signature) (Boeyen Fig. 6, Fig. 7 and page 6 lines 67-col. 7 lines 6) that reads on a signature key determiner for extracting said message document from a predetermined application, and for, based on said message document, determining a key used to provide a digital signature;

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to employ the teachings of Boeyen within the system of Godfrey because it would manage multiple private keys and determine an appropriate private key to generate a digital signature and enhance security.

As per claim 2, both Godfrey and Boeyen teach all the subject matter as described above. In addition, the proxy server (Godfrey Fig. 1 No. 108 and 110), wherein said key manager sets multiple key selection rules for obtaining said key, and only when said key selection rules are satisfied can said signature generator obtain said key (Boeyen Fig. 6 and Fig. 7, and col. 7 lines 11-14; when signature format, 212a or 212b is selected, the selector selects the appropriate private key based on the data has been received and applies digital signature based on the rule, and digital signature is enabled or disabled by control data. For example: if 212a is selected use first signature private key else if 212b is selected use second signature private key). The rationale for combining are the same as claim 1 above.

As per claim 5 both Godfrey and Boeyen teach all the subject matter as described above. In addition, the proxy server (Godfrey Fig. 1 No. 108 and 110), further comprising:

a log manager for storing said message document with a digital signature provided by said signature generator, and for managing a log (Godfrey Col. 5 lines 41-43).

As per claim 8, both Godfrey and Boeyen teach all the subject matter as described above. In addition, teaches the digital signature system, wherein said proxy server (Godfrey Fig. 1 No. 120 and 118; proxy server generating a digital signature) permits a key used to provide a digital signature to be changed in accordance with the contents of a message document (Boeyen Col. 6 lines 62-col. 7 lines 14; certificate generator device permits a key used to provide a digital signature to be changed based on the contents of a message document to generate a selected signature format); and wherein said proxy server sets key selection rules for said key and permits



digital signature using said key when said key selection rules have been satisfied (Boeyen Fig. 6 and Fig. 7, and col. 7 lines 11-14; when signature format, 212a or 212b is selected, the selector selects the appropriate private key based on the data has been received and applies digital signature based on the rule, and digital signature is enabled when the selection rule have been satisfied. For example: if 212a is selected use first signature private key else if 212b is selected use second signature private key). The rational for combining are the same as claim 1 above.

As per claim 21, both Godfrey and Boeyen teach all the subject matter as described above. In addition, Godfrey teaches a computer program product comprising a computer usable medium having computer readable program code means embodied therein for causing relaying communications between applications and performing an additional process, the computer readable program code means in said computer program product comprising computer readable program code means for causing a computer to effect the functions of claim 1 (Godfrey Col. 4 lines 21-36 and col. 5 lines 50-62).

Claims 3-4, 6, 9, 15, 25, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Godfrey et al. (Godfrey, Patent No.: US 6,363,479 B1) in view of Boeyen et al. (Boeyen, Patent No.: US 6,675,296 B1) and Spelman et al. (Spelman, Patent Number: 5,680,458).

As per claim 15, Godfrey teaches a digital signature method comprising: providing a digital signature for a message document exchanged by applications and for authorizing said message document (Godfrey Fig. 1 No. 118 and 120), including the steps of:

transmitting said message document with said digital signature to a destination designated by said application (Godfrey Fig. 1 No. 118 and 126, and col. 5 lines 21-22);

Godfrey does not explicitly teach:

selecting, in accordance with the type of a message document transmitted by a predetermined application, a key used for providing a digital signature for said message document;

using said key, when said key selection rules for said key have been satisfied after said digital signature has been provided using said replacement key, to again provide a digital signature, and transmitting said message document with said digital signature to said destination.

However Boeyen discloses selecting, in accordance with the type of a message document transmitted by a predetermined application, a key used for providing a digital signature for said message document (Boeyen Fig. 6, Fig. 7 and page 6 lines 67-col. 7 lines 6);

Key selection rules (Boeyen Fig. 6 and Fig. 7; when signature format, 212a or 212b is selected, the selector selects the appropriate private key based on the data has been received and applies digital signature based on the rule. For example: if 212a is selected use first signature private key else if 212b is selected use second signature private key);

using said key, when said key selection rules for said key have been satisfied after said digital signature has been provided using the appropriate key, to again provide a digital signature, and transmitting said message document with said digital signature to said destination (Boeyen Col. 2 lines 66-col. 3 lines 1, fig. 6 No. 212a or 212b and col. 6 lines 62-col. 7 lines 18;

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to generate a second digital signature using an appropriate key when signature format is selected).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to employ the teachings of Boeyen within the system of Godfrey because it would select an appropriate key among multiple private keys and generate a second digital signature to facilitates compatibility among users of certificates having differing data structure and different syntaxes of certificate information (Boeyen col. 2 lines 24-27).

Godfrey and Boeyen do not explicitly teach providing a digital signature for said message document, when key selection rules set for said key are not established, by using a replacement key that is set in advance for said key;

However Spelman discloses generating a digital signature using replacement key (Spelman Col. 4 lines 65-col. 5 lines 8; when central authority's root key/private key has been compromised, the central authority selects a new replacement private/public key pairs, generated based on the root key/private key, and generates a digital signature using a replacement private key and sends the generated digital signature along with the replacement public key to the user);

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to employ the teachings of Spelman within the combination system of Godfrey and Boeyen because it would allow to effectively and efficiently provide the

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replacement key so that the public can trust a valid key (Spelman Col. 1 lines 52-57). One skilled in the art at the time of the invention was made would modify these teachings and use a replacement key when a key selection rules set for said key are not established or satisfied because it would provide digital signature when key selection rules are not established.

As per claim 3, Godfrey, Boeyen and Spelman teach all the subject matter as described above. In addition, the proxy server (Godfrey Fig. 1 No. 108 and 110), wherein, when said key for generating a digital signature for said message document can not be obtained, said signature generator employs a replacement key that is defined in advance to provide a digital signature (Spelman Col. 4 lines 65-col. 5 lines 8; when central authority's root key/private key has been compromised, the central authority selects a new replacement private/public key pairs, generated based on the root key/private key, and generates a digital signature using a replacement private key and sends the generated digital signature along with the replacement public key to the user). The rationale for combining are the same as claim 15 above.

As per claim 4, Godfrey, Boeyen and Spelman teach all the subject matter as described above. In addition, the proxy server, wherein, after said signature generator has provided a digital signature using said replacement key (Spelman Col. 4 lines 65-col. 5 lines 8), when said acquisition condition that is determined for the original key based on said message document is satisfied to enable the acquisition of said original key (Spelman Fig. 1 No. 16 and 18), said signature generator again provides a digital signature using said original key (Boeyen Col. 2 lines 66-67). The rationale for combining are the same bases as claim 15 above.

As per claim 6, Godfrey, Boeyen and Spelman teach all the subject matter as described above. In addition, the proxy server, wherein said log manager stores not only said message document for which said signature generator has provided a digital signature using said replacement key (Spelman Col. 3 lines 22-27), but also said message document without digital signature; and wherein said signature generator obtains, from said log manager, said message document without said digital signature, and provides a digital signature using said original key (Godfrey Fig. 1 No. 112, 114, and 120). The rational for combining are the same as claim 15 above.

As per claim 9, Godfrey, Boeyen and Spelman teach all the subject matter as described above. In addition, the digital signature system, said proxy server employs a predetermined replacement key to provide a digital signature (Spelman Col. 4 lines 65-col. 5 lines 8); and wherein, when said key selection rules for said key are satisfied after said digital signature has been provided using said replacement key (Spelman Col. 4 lines 65-col. 5 lines 8), said proxy server again employs said key to provide a digital signature for said message document (Boeyen Col. 2 lines 66-67). The rational for combining are the same bases as claim 15 above.

As per claim 25, Godfrey, Boeyen and Spelman teach all the subject matter as described above. In addition, Godfrey teaches an article of manufacture comprising a computer usable medium having computer readable program code means embodied therein for causing a digital signature method, the computer readable program code means in said article of manufacture comprising

computer readable program code means for causing a computer to effect the steps of claim 15 (Godfrey Col. 5 lines 1-3).

As per claim 27, Godfrey, Boeyen and Spelman teach all the subject matter as described above. In addition, Godfrey teaches a program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for a digital signature method, said method steps comprising the steps of claim 15 (Godfrey Col. 5 lines 1-3).

6. Claims 12-14, 16, 26, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Godfrey et al. (Godfrey, Patent No.: US 6,363,479 B1) Spelman et al. (Spelman, Patent Number: 5,680,458).

As per claim 16, Godfrey teaches a digital signature verification method comprising: for verifying a digital signature provided for a message document exchanged by applications, and for authorizing said message document (Godfrey Col. 5 lines 37-41 and Fig. 1 No. 118, 120), including the steps of:

receiving a message document with a digital signature that used said original key (Godfrey Col. 5 lines 22-23);

Godfrey does not explicitly teach a providing and verifying digital signature in using a replacement key,

However Spelman discloses accepting a message document with a digital signature that uses a replacement key, when said digital signature on said received message document has been provided by using said replacement key for an original key that is determined in accordance with the type of said message document (Spelman Col. 6 lines 47-63; the replacement public key that corresponds to the replacement private key and the digital signature that is generated using the central authority's replacement private key is verified and accepted along with the message);

verifying a digital signature, provided using said original key, to authorize said message document with said digital signature that uses said replacement key (Spelman Col. 6 lines 47-63 and col. 8 lines 65-col. 9 lines 6).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to employ the teachings of Spelman within the system of Godfrey because it would allow to effectively and efficiently provide the replacement key so that the public can trust a valid key (Spelman Col. 1 lines 52-57). One skilled in the art at the time of the invention was made would modify these teachings to receive a message document with a digital signature that used said original key after the message document signed using said replacement key has been accepted because it would additionally provide a digital signature that uses a private key.

As per claim 12, both Godfrey and Spelman teach all the subject matter as described above. In addition, teaches the network system (Godfrey Fig. 1), wherein, when said application of said local group transmits a message document (Godfrey Fig. 1 No. 106), said proxy server stores the

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message document with a digital signature in a log, and manages said log (Godfrey Col. 6 lines 48-50); wherein, when said application of said local group receives a message document from a different group, said proxy server stores in a log a message document authenticated by a verification of a digital signature, and manages said log (Godfrey Col. 5 lines 13-22); and wherein, at a predetermined timing (Spelman Fig. 1 No. 16 and 18, and fig. 3 No. 202), the server compares the transmission log with the reception log for the same message document, and authorizes communication (Godfrey Fig. 3 No. 304). The rationale for combining are the same as claim 16 above.

As per claim 13, both Godfrey and Spelman teach all the subject matter as described above. In addition, Godfrey teaches the network system, wherein said proxy server compares signature information for a digital signature concerning the same message document (Godfrey Fig. 1 and col. 5 lines 13-23).

As per claim 14, both Godfrey and Spelman teach all the subject matter as described above. In addition, Godfrey teaches the network system, wherein said proxy server compares hash values used for providing a digital signature for the same message document (Godfrey Col. 8 lines 1-7).

As per claim 26, both Godfrey and Spelman teach all the subject matter as described above. In addition, Godfrey teaches an article of manufacture comprising a computer usable medium having computer readable program code means embodied therein for causing a digital signature verification method, the computer readable program code means in said article of manufacture



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comprising computer readable program code means for causing a computer to effect the steps of claim 16 (Godfrey Col. 3 lines 60-63).

As per claim 28, both Godfrey and Spelman teach all the subject matter as described above. In addition, Godfrey program storage device readable by machine; tangibly embodying a program of instructions executable by the machine to perform method steps for a digital signature verification method, said method steps comprising the steps of claim 16 (Godfrey Col. 3 lines 60-63).

7. Claims 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boeyen et al. (Boeyen, Patent No.: US 6,675,296 B1) in view of Spelman et al. (Spelman, Patent Number: 5,680,458).

As per claim 18, Boeyen teaches a storage medium on which input means of a computer stores a computer-readable program that permits said computer to perform:

a process for selecting a key used to provide a digital signature for a message document in accordance with a type of message document transmitted from a predetermined application (Boeyen Fig. 6, Fig. 7 and page 6 lines 67-col. 7 lines 6);

a process for providing said digital signature for said message document using said key that is selected (Boeyen Fig. 7 No. 700, 26, and 32), when key selection rules for said key used to provide a digital signature for said message document have not been satisfied (Boeyen Fig. 6 and Fig. 7; when signature format, 212a or 212b is selected, the selector selects the appropriate

private key based on the data has been received and applies digital signature based on the rule.

For example: if 212a is selected use first signature private key else if 212b is selected use second signature private key); and

a process for employing said key to provide again a digital signature for said message document, when said key selection rules for said key are satisfied after said digital signature has been provided using said replacement key (Boeyen Col. 2 lines 66-col. 3 lines 1, fig. 6 No. 212a or 212b and col. 6 lines 62-col. 7 lines 18; to generate a second digital signature using an appropriate key when signature format is selected).

Boeyen does not explicitly teach employing a predetermined replacement key to provide said digital signature for said message document;

However Spelman discloses generating a digital signature using a predetermined replacement key (Spelman Col. 4 lines 65-col. 5 lines 8; when central authority's root key/private key has been compromised, the central authority selects a new replacement private/public key pairs and generates a digital signature using a replacement private key and sends the generated digital signature along with the replacement public key to the user);

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to employ the teachings of Spelman within the system of Boeyen because it would allow to effectively and efficiently provide the replacement key so that the public can trust a valid key (Spelman Col. 1 lines 52-57).

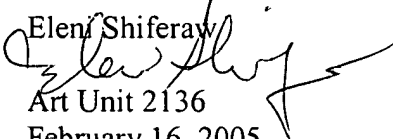
As to claim 20, it has similar limitations as claim 18; therefore, it is being rejected under the same rationale over Boeyen and Spelman. In addition, Boeyen teaches:

transmission means for reading said program from said storage means, and for transmitting said program (Boeyen Fig. 1 and col. 5 lines 13-49).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eleni A Shiferaw whose telephone number is 571-272-3867. The examiner can normally be reached on Mon-Fri 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz R Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eleni Shiferaw  
  
Art Unit 2136  
February 16, 2005